

**AQUIFER PROTECTION PERMIT NO. P-512392
PLACE ID 2433, LTF 66788**

1.0 Authorization

AUTHORIZATION TO CLOSE A DISCHARGING ACTIVITY IN A MANNER SUCH THAT CURRENT AND REASONABLY FORESEEABLE FUTURE USES OF THE AQUIFER ARE PROTECTED

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, the Arizona Department of Environmental Quality (ADEQ) hereby authorizes Praxair, Inc. to close the gravel bed drainage field located at 3426 West Griffith Road, Kingman, Mohave County, Arizona, over groundwater of the Sacramento Valley Groundwater Basin, in Township 19N, Range 17W, Section 18 of the Gila and Salt River Base Line and Meridian.

This permit shall become effective on the date of the Water Quality Division Director's signature and shall be valid for the closure and any post-closure period of the facility, provided that the facility is constructed, operated, and maintained pursuant to all the conditions of this permit according to the design and operational information documented or referenced below, and such that no additional degradation of the aquifer at the applicable point of compliance will occur as a result of the discharge from this facility.

1.1 Permittee Information

Facility Name: Praxair, Inc.
Facility Address: 3426 West Griffith Road, Kingman, Mohave County, Arizona 86401
Annual Registration Fee Flow Rate: Not applicable
Permittee: Praxair, Inc.
Permittee Address: P.O. Box 6157, Kingman, Mohave County, Arizona 86401
Facility Contact: Stoney Shumway
Emergency Phone No.: 928-279-9282
Latitude/Longitude: 35° 01' 38.5"/114° 08' 10.2"
Legal Description: Township 19N, Range 17W, Section 18 of the Gila and Salt River Base Line and Meridian

1.2 Authorizing Signature

David W. Dunaway, Groundwater Protection Manager
Water Quality Division
Arizona Department of Environmental Quality
Signed this ____ day of _____, 2017

2.0 SPECIFIC CONDITIONS [A.R.S. §§ 49-203(4), 49-241(A)]**2.1 Facility / Site Description [A.R.S. § 49-243(K)(8)]**

The Praxair facility is an arsine gas manufacturing and filling process facility developed on approximately 18-acres of fenced area on approximately 188 acres of land. Arsine is synthesized by the reaction of mixing zinc arsenide with sulfuric acid to produce zinc sulfate and pure arsine gas. Process water generated at the facility, including scrubber discharges, is disposed off-site. Other waste streams include reverse osmosis (RO) reject water, cooling tower and boiler blowdown, air drier condensate, and fire sprinkler test water. These waste streams were discharged to a gravel bed drainage field located south adjacent to the southern fence line.

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
Gravel Bed Drainage Field	35° 01' 38.5"	114° 08' 10.2"

2.1.1 Financial Capability [A.R.S. § 49-243(N) and A.A.C. R18-9-A203]

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability until the closure of the Gravel Bed Drainage Field has been completed, and ADEQ has provided a permit release. The estimated closure cost is \$41,086. The financial assurance mechanism was demonstrated through a performance surety bond pursuant to A.A.C. R18-9-A203.C.2.

2.2 Best Available Demonstrated Control Technology [A.R.S. § 49-243(B) and A.A.C. R18-9-A202(A)(5)]

The Gravel Bed Drainage Field scheduled for closure consists of a 50 feet long, four-inch diameter perforated PVC leach pipe, buried approximately 3 feet below ground surface and underlain by a three foot by three foot bed of leach rock.

2.3 Facility Closure Activities [A.R.S. § 49-252]

The closure activities described in this section shall be completed as per the supporting document submitted with the APP application dated August 2017. Two soil borings shall be drilled including one adjacent to the drain line approximately 3 feet west, near the center of the drain line, and the second soil boring located approximately 16 feet south of the drain line. These two soil borings shall be drilled to a depth of 30 feet below ground surface. In addition to the soil boring located adjacent to the drain line, one sample shall be collected of the gravel drainage bed using a hand auger or a drill rig. A third boring shall be drilled north of the facility midway along the access road to obtain background subsurface characteristics. This boring shall be drilled to a depth of 20 to 30 feet. Soil samples shall be collected at 10 foot intervals, or at the interval(s) where indication of staining or elevated vapor concentrations are registered on a photoionization detector (PID).

The samples shall be analyzed for the following parameters as per Section 2.3.1 below:

- Volatile organic compounds
- Semi-volatile organic compounds (SVOCs)
- Metals (antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, thallium)
- pH
- Nitrate as N and Nitrite as N
- Total Kjeldahl Nitrogen (TKN)
- Total petroleum hydrocarbons, diesel and oil range organics (DRO/ORO)

2.3.1 Analytical Methodology

All samples collected for compliance monitoring shall be analyzed using Arizona state-approved

methods. If no state-approved method exists, then any appropriate EPA-approved method shall be used. Regardless of the method used, the detection limits must be sufficient to determine compliance with the regulatory limits of the parameters specified in this permit. If all methods have detection limits higher than the applicable limit, the permittee shall follow the contingency requirements of Section 2.6 and may propose “other actions” including amending the permit to set higher limits. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification unless exempted under A.R.S. § 36-495.02. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona state-certified laboratories can be obtained at the address below:

Arizona Department of Health Services
Office of Laboratory Licensure and Certification
250 North 17th Avenue
Phoenix, AZ 85007
Phone: (602) 364-0720

2.4 Point(s) of Compliance [A.R.S. § 49-244]

No point of compliance (POC) wells are required to be installed at this time. One conceptual hazardous / non-hazardous POC location has been designated for this facility as follows:

Name: Location Description	Latitude	Longitude
POC # 1: Conceptual POC located approximately 16 feet south-southwest of the drain line	35° 1' 38.15" N	114° 8' 10.22" W

2.5 Other Permit Conditions

- 2.5.1** This closure permit reserves ADEQ’s right to require additional investigation, including any necessary remediation, if ADEQ becomes aware of new evidence which would alter its determination.
- 2.5.2** Other permit conditions including monitoring, alert levels, contingency plans, record keeping, and post-closure plans are not required.

2.6 Reporting Requirements [A.R.S. § 49-243(K)(2) and A.A.C. R18-9-A206(B)]

2.6.1 Reporting Location

All SMRFs shall be submitted to:

Arizona Department of Environmental Quality
Groundwater Section
Mail Code: 5415B-3
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4571

Or

Through the myDEQ portal accessible on the ADEQ website at:

<http://www.azdeq.gov/welcome-mydeq>

All documents required by this permit to be submitted to the Groundwater Section shall be directed to:

Arizona Department of Environmental Quality
Groundwater Section
Mail Code: 5415B-3
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4999

2.7 Reporting and Recordkeeping Requirements

a. Clean Closure Report

Within 30 days of completing the work described in the Clean Closure Work Plan (i.e., receipt of analytical results approximately two weeks after completion of sampling activities), the permittee shall submit a Clean Closure Report with a permit amendment application for clean closure that contains a summary describing the results of the activities completed under the Clean Closure Work Plan and shall include, but not be limited to, the following items:

1. A narrative description of the work completed, including any deviations from the approved Clean Closure Work Plan and rationale for those deviations.
2. A summary of the analytical results of the soil sampling that discusses any results that exceeded minimum GPLs, and a comparison of those results to the predictions of the model described in the supporting document submitted with the APP application dated August 2017.
3. Photographic documentation of the work completed, including before, in-progress, and after photos.

If clean closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time.

b. Clean Closure Work Plan Addendum

Within 30 days of permit issuance, the permittee shall submit an addendum to the Clean Closure Work Plan originally submitted with the aquifer protection permit application received by ADEQ on September 1, 2017. The addendum shall include the following items:

1. A discussion on the potential need for additional soil sampling at deeper depths and/or additional locations as a contingency action should the initial soil sampling, as described in the Clean Closure Work Plan, demonstrate that minimum GPLs have been exceeded and a need to further identify the vertical and lateral extent of contamination exists.
2. A discussion on the potential need to conduct soil remediation activities.
3. A discussion on the potential need to remove any contaminated soil from the site.
4. A discussion on any limitation on future land or water uses created as a result of the facility's operations or closure activities
5. An approximate schedule for implementation of the closure plan and submission of the Clean Closure Report

2.8 Temporary Cessation

Not applicable

2.9 Closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(B)]

Closure activities shall be completed as outlined Section 2.3.

2.9.1 Closure Completion

Upon completion of closure activities as per the clean closure work plan included in the aquifer protection permit application, the permittee shall give written notice to the Groundwater Section indicating that the approved Closure Plan has been implemented fully and providing supporting documentation to demonstrate that clean closure has been achieved (soil sample results, verification sampling results, groundwater data, as applicable). If clean closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time. If any of the following conditions apply, a clean closure will not be provided:

1. Clean closure cannot be achieved at the time of closure notification or within 1 year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with AWQS at an applicable POC to be decided;
3. The closure activities per Section 2.3 shall verify that the closure design has eliminated discharge

to the extent intended. This shall include the requirement that the subsurface soils do not contain contaminants above the minimum groundwater protection level (GPL) for any given constituent;

4. Remediation or mitigation measures are necessary to achieve compliance with Title 49, Ch. 2; and/or
5. Further action is necessary to meet property use restrictions.

2.10 Post-closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(C)]

Not applicable at this time.

3.0 COMPLIANCE SCHEDULE [A.R.S. § 49-243(K)(5) and A.A.C. R18-9-A208]

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Section.

No.	Description	Due by:	Permit Amendment Required?
1	Per Section 2.7(b) of this permit, the permittee shall submit an addendum to the Clean Closure Work Plan.	Within 30 days of approval of this permit	N
2	Per Section 2.3, the permittee shall complete the sampling activities to demonstrate clean closure has been achieved.	Within 60 days of approval of this permit	N
3	Per Section 2.7(a) and 2.9 of this permit, the permittee shall submit a written notification of completion of the closure activities providing supporting documentation to demonstrate that clean closure has been achieved.	Within 30 days of receipt of analytical results (expected within two weeks of completion of sampling activities)	Y

5.0 REFERENCES AND PERTINENT INFORMATION

The terms and conditions set forth in this permit have been developed based upon the information contained in the following, which are on file with the Department:

1. APP Application dated August 31, 2017
2. Public Notice dated _____
3. Permit Grant date _____

6.0 NOTIFICATION PROVISIONS

6.1 Annual Registration Fees

Not applicable.

6.2 Duty to Comply [A.R.S. §§ 49-221 through 49-263]

The permittee is notified of the obligation to comply with all conditions of this permit and all applicable provisions of Title 49, Chapter 2, Articles 1, 2 and 3 of the Arizona Revised Statutes, Title 18, Chapter 9, Articles 1 through 4, and Title 18, Chapter 11, Article 4 of the Arizona Administrative Code. Any permit non-compliance constitutes a violation and is grounds for an enforcement action pursuant to Title 49, Chapter 2, Article 4 or permit amendment, suspension, or revocation.

6.3 Duty to Provide Information [A.R.S. §§ 49-243(K)(2) and 49-243(K)(8)]

The permittee shall furnish to the Director, or an authorized representative, within a time specified, any information which the Director may request to determine whether cause exists for amending or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

6.4 Compliance with Aquifer Water Quality Standards [A.R.S. §§ 49-243(B)(2) and 49-243(B)(3)]

The permittee shall not cause or contribute to a violation of an aquifer water quality standard at the applicable point of compliance for the facility. Where, at the time of issuance of the permit, an aquifer already exceeds an aquifer water quality standard for a pollutant, the permittee shall not discharge that pollutant so as to further degrade, at the applicable point of compliance for the facility, the water quality of any aquifer for that pollutant.

6.5 Technical and Financial Capability

[A.R.S. §§ 49-243(K)(8) and 49-243(N) and A.A.C. R18-9-A202(B) and R18-9-A203(E) and (F)]

The permittee shall have and maintain the technical and financial capability necessary to fully carry out the terms and conditions of this permit. Any bond, insurance policy, trust fund, or other financial assurance mechanism provided as a demonstration of financial capability in the permit application, pursuant to A.A.C. R18-9-A203(D), shall be in effect prior to any discharge authorized by this permit and shall remain in effect for the duration of the permit.

6.6 Reporting of Bankruptcy or Environmental Enforcement [A.A.C. R18-9-A207(C)]

The permittee shall notify the Director within five days after the occurrence of any one of the following:

1. The filing of bankruptcy by the permittee.
2. The entry of any order or judgment not issued by the Director against the permittee for the enforcement of any environmental protection statute or rule.

6.7 Monitoring and Records [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A206]

The permittee shall conduct any monitoring activity necessary to assure compliance with this permit, with the applicable water quality standards established pursuant to A.R.S. §§ 49-221 and 49-223 and §§ 49-241 through 49-252.

6.8 Inspection and Entry [A.R.S. §§ 41-1009, 49-203(B) and 49-243(K)(8)]

In accordance with A.R.S. §§ 41-1009 and 49-203(B), the permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to enter and inspect the facility as reasonably necessary to ensure compliance with Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes, and Title 18, Chapter 9, Articles 1 through 4 of the Arizona Administrative Code and the terms and conditions of this permit.

6.9 Duty to Modify [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A211]

The permittee shall apply for and receive a written amendment before deviating from any of the designs or operational practices specified by this permit.

6.10 Permit Action: Amendment, Transfer, Suspension & Revocation

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

This permit may be amended, transferred, renewed, or revoked for cause, under the rules of the Department.

The permittee shall notify the Groundwater Section in writing within 15 days after any change in the owner or operator of the facility. The notification shall state the permit number, the name of the facility, the date of property transfer, and the name, address, and phone number where the new owner or operator can be reached. The operator shall advise the new owner or operators of the terms of this permit and the need for permit transfer in accordance with the rules.

7.0 ADDITIONAL PERMIT CONDITIONS

7.1 Other Information [A.R.S. § 49-243(K)(8)]

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit the correct facts or information.

7.2 Severability

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. The filing of a request by the permittee for a permit action does not stay or suspend the effectiveness of any existing permit condition.

7.3 Permit Transfer

This permit may not be transferred to any other person except after notice to and approval of the transfer by the Department. No transfer shall be approved until the applicant complies with all transfer requirements as specified in A.A.C. R18-9-A212(B) and (C).